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ABSTRACT

Using a national panel data set that links the National Longitudinal Survey of Youth (NLSY) with the NLSY Child data, this study examines the impact of homeownership on several child outcomes. Data analysis indicates that children of homeowners have better home environments, higher cognitive test scores, and fewer behavior problems than do children of renters. The study finds that these results hold even after controlling for a large number of economic, social, and demographic variables. Owning a home compared with renting leads to a 13 to 23 percent higher quality home environment. The independent impact of homeownership combined with its positive impact on the home environment results in the children of homeowners achieving math scores up to nine percent higher and reading scores up to seven percent higher, with reductions in children's behavior problems of up to three percent. These findings suggest that homeownership support programs should be targeted to households with young children. The measurement of the home environment questionnaire is appended. (Contains 61 references.) (SM)

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Donald R. Haurin, Toby L. Parcel and R. Jean Haurin

October 2001

Low-Income Homeownership Working Paper Series

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Joint Center for Housing Studies

Harvard University

The Impact of Homeownership on Child Outcomes

Donald R. Haurin, Toby L. Parcel, and R. Jean Haurin

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October 2001

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Abstract

Does homeownership affect the outcomes of resident children? Using a national data set, we observed that children of homeowners have better home environments, high cognitive test scores, and fewer behavior problems than do children of renters. We find that these results hold even after controlling for a large number of economic, social, and demographic variables. Owning a home compared with renting leads to 13 to 23 percent higher quality home environment, *ceteris paribus*. The independent impact of homeownership combined with its positive impact on the home environment results in the children of owners achieving math scores up to nine percent higher, reading scores up to seven percent higher, and reductions in children's behavior problems of up to three percent. These findings suggest homeowners support programs should be targeted at households with young children.

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I. Introduction

While there are many claims that homeownership yields significant benefits for the owners, the owner's local community, and the nation, there are relatively few studies of this assertion that fully address the complex modeling, data, and estimation issues that the claim implies. Recently, there has been substantial interest in measuring the impact of homeownership on the cognitive and behavioral outcomes of young people.

Our child outcome measures include normed achievement test scores in mathematics and reading, and an indicator of behavioral adjustment. Our measures of cognitive achievement have good predictive validity and are associated with contemporaneous and subsequent measures of school achievement (Baker, et al. 1993), an important precursor of occupational and earning attainment. Regarding behavioral adjustments, researchers have documented continuities between aggressive, antisocial behavior in children and subsequent analogous adult behaviors (Caspi, Elder and Bem 1987; Forgatch, Patterson and Skinner 1988, Kohlberg, LaCrosse and Ricks 1972, Mechanic 1980, Robbins 1966, 1979). Over-controlled, inhibited, or fearful behaviors are associated with later learning difficulties (Kohn 1977). Our measure of behavior, discussed in more detail below, draws on indicators of both overly aggressive and inhibited behaviors.

We expect our findings will be important in discussion of public subsidies for homeownership. Examples of current topics related to public intervention in the homeownership decision include the conversion of public rental housing to owned units, government subsidies to reduce down payments, and enforcement measures related to illegal discrimination in the housing market. Economists have found that one impact of a public subsidy for homeownership is to quicken the conversion from renting to owning (Bourassa, et al. 1994). Finding that homeownership positively affects child outcomes strengthens the argument for early homeownership. Public subsidies of homeownership are supported if ownership reduces child behavior problems because these behaviors are precursors of later and more significant deviant behavior. Improved child cognition yields not only increased future earnings for the child, but also generates the externalities associated with a higher achieving population.

II. Literature

There are few published studies about the relationship of homeownership with child outcomes. Green and White (1991) use three national data sets (Panel Study of Income Dynamics, 1980 Census PUMS, and High School and Beyond) to investigate the effect of parental homeownership on the probability that a 17-year-old remains in school and that a 17-year-old female has given birth to a child. They find that parental homeownership reduces the probability of resident 17-year old children dropping out or giving birth.

Aaronson (2000) notes that empirical studies in the economics of educational literature support the hypothesis that greater temporal stability of a household increases a child's cognitive performance (Hanushek, Kain, and Rivkin 1999). Using the PSID, Aaronson retests Green and White's hypothesis, but he separates the mobility effect from other homeownership effects from other homeownership effects. He finds mobility is disrupted and the stability associated with homeownership increases the likelihood of a 19-year-old graduating from high school. Homeownership also has a positive impact on the graduation rate other than through increased stability, but the size of the impact varies across empirical specifications.

Our approach differs from the studies by Aaronson and Green and White in many ways. We focus on cognitive and behavioral outcomes of young children, not older teenage youths; thus, our approach better links the timing of homeownership with the observation of a child's outcomes. We also use multiple observations of each child's outcome, allowing us to control for unobserved child-specific factors such as innate cognitive ability. The breadth of our control variables is much greater, including measures of household wealth and attributes of the locality. Finally, our model tests for impacts of homeownership both directly on child outcomes and through variable measuring the quality of the home environment.

III. Model and Research Design

Our theoretical approach draws from economics and sociology. One argument for inclusion of homeownership in a model of child outcomes is that homeowners are willing to invest more in their home environments than are renters because they profit from the capital gain, and this investment in physical and social capital positively affects child

outcomes. Another argument is that homeowners tend to stay for a longer time in a dwelling than do renters and this greater stability increases the social capital of the household. Higher levels of social capital positively influence child outcomes.

Our empirical approach is to regress two indexes of the quality of the home environment on an indicator of the current homeownership status and a vector of control variables (Becker 1965). Next, we regress two measures of a child's current cognitive outcomes and an index of behavioral problems on the indexes of the current home environment, the indicator of homeownership status, and current past values of other explanatory variables. In these estimations, we use a random effects panel data procedure to allow for unobserved household specifics and child specific factors. We also use an instrumental variable for the homeownership indicator to address the issue of the possible presence of an unobserved factor affecting a household's tendency to own a home and invest in a child.

Menaghan and Parcel (1991, 1995) identify control variables for the home environment estimation including parental working conditions, family structure, and parental background characteristics. The vector of control variables in the child cognition and behavioral problems equations includes many factors that affect child outcomes. Parcel and Menaghan (1994a) suggest the importance of parental age, family size, and marital stability, as well as child characteristics such as gender, birth weight and health problems, and maternal race, education, and mental ability. We include these variables and neighborhood characteristics as controls (Haveman and Wolfe 1995). Our featured tests are of the impact of the home environment and homeownership on child outcomes.

Data Set

Our study uses a national panel data set that links a survey of young adults, the National Longitudinal Survey of Youth (NLSY), with the NLSY-Child data (NLSY-C), this being a survey of the children of NLSY79 mothers (Center for Human Resource Research 1994). The NLSY79 survey began in 1979 and is annual through the period we study. Children in the sample are ages five to eight in 1988. The NLSY Child data are available for 1986, 1988, 1990, 1992, and 1994. We omit 1986 primarily because the form of the cognitive tests differs. The retention rates in both samples are excellent (90 percent of NLSY79 respondents). The NLSY79 reports the homeownership status of respondents

and their geographic location. Locations are matched to households using county level data, allowing for tests of the impact of local geographic attributes. NLSY79 mothers were ages 23 to 30 in 1988; thus were ages 15 to 26 at the time of a child's birth. Figure 1 lists the distribution of mother's ages.

Figure 1: Mother's Age in the Year of Birth of Her Child: Percentage Distribution in the Sample

15	16	17	18	19	20	21	22	23	24	25	26
0.3	2.3	4.1	9.3	11.4	14.2	12.1	14.7	13.4	11.3	5.9	1.0

Dependent Variables

We estimate the determinants of two measures of a child's home environment and three measures of child outcomes

Home Environment

The NLSY-C data set include age-appropriate sets of items derived from the Home Observation for Measurement of the Environment (HOME) scales (Bradley and Caldwell 1984a, 1984b; Caldwell and Bradley 1984). The HOME scales were devised to identify and describe homes of infants and young children who were at significant development risk (Bradley, et al. 1988; Elardo and Bradley 1981 They have proved useful in identifying home environments associated with impaired mental development, clinical malnutrition, abnormal growth, and poor school performance (Bradley 1985). The scales measure cognitive variables, including language stimulation, provision of a variety of stimulating experiences and materials, and encouragement of child achievement; social variables, including responsiveness, warmth, and encouragement of maturity; and physical environmental variables, including the amount of sensory input and organization of the physical environment. The two-year test-retest reliability ranges from 0.38 to 0.56 (Yeates et al. 1983) to 0.56 to 0.57 (Ramey, Yeates, and Short 1984). The inter-rater reliability in six studies was about 0.9 (Bradley 1981).

In consultation with Bradley, the Center for Human Resource Research selected age-appropriate items to create the two HOME variables included in the NLSY-C. Each HOME scale includes both maternal report items and interviewer observations. The

cognitive stimulation/physical environment HOME scale (HOME-C) is based on the responses to 12 to 15 items depending on the child's age. A detailed list is in Appendix A. HOME-C contains items measuring the quality of the building and living space, and measuring the amount of materials and time spent on activities related to cognitive stimulation provided by the family for the child. The emotional support HOME scale (HOME-E) is based on the responses to 12 to 14 items depending on the child's age (see Appendix A). Items measure the nature of family member's interactions with the child. Both HOME scales are normed so the weighted average is 100 with a standard deviation of 15. A percentile score is then derived based on the assumption that the scores are normally distributed. This scoring method ensures intertemporal comparability of the HOME scales for the four surveys. A higher value on either scale implies the child lives in a more supportive home environment.

Child Cognition

Our two measures of child cognition are derived from normed reading recognition and mathematical achievement scores on the Peabody Individual Achievement Test (PIAT). The reading recognition (PIAT-RR) test begins with preschool level items and progresses in difficult to the high school level (Baker et al. 1993). Although the 1968 normed sample has a mean of 100, the mean normed score in the NLSY-C sample is somewhat above 100. Baker et al. (1993) attribute the above average mean to increases in the last 25 years of child television viewing and preschool reading readiness programs. These data are converted to percentile scores to insure intertemporal comparability. A higher value indicates greater achievement on the test. One-month test-retest reliability ranges from 0.81 to 0.94 for K to 3rd grade (Baker, et al. 1993: 140).

The mathematics assessment (PIAT-M) measures mathematics achievement. The test begins with basic skills such as numeral recognition and progresses to geometry and trigonometry. Again, the test was normed in 1968 on a national sample of children. The NLSY-C weighted sample mean is 100. These scores are then converted into percentile scores. The correlation between PIAT Math and Reading Recognition scores is about 0.5 (Baker et al. 1993). One-month test-retest reliability averages 0.74 with the value increasing with grade level (Baker, et al. 1993: 135).

Child Behavior Problems

The NLSY-C includes an index of child behavior problems based on 28 items indicating mothers' reports. These items were included in the 1982 Child Health Supplement to the National Health Interview Survey (Zill 1988) and were primarily drawn from the Child Behavior Checklist (CBCL) developed by Achenbach and Edelbrock (1981, 1983). They have been used since the mid-1960s for measuring and assessing child behavior problems. Items also were drawn from Rutter (1970), Graham and Rutter (1968), and Kellam et al. (1975).

Assessment Items were chosen to represent relatively common behavior syndromes in children, for example, "acting-out," depressed-withdrawn behavior, and anxious-distractible behavior, rather than rare behaviors indicative of serious pathology. Specific items include difficulties interacting with other children, difficulties concentrating, having a strong temper and being argumentative, being withdrawn, demanding attention, being too dependent/clingy, and feeling worthless or inferior. Twenty-six items were asked for all children and an additional two items asked only of those children attending school. The items have good test-retest reliability and discriminant validity (Baker et al. 1993: 107). Achenbach, McConaughy, and Howell (1987) show that parents' reports were consistent with the reports of other informants, including teachers and mental health practitioners.

Normed scores are created based on data from the 1981 National Health Interview Survey, these data having a mean of 100 and standard deviation of 15. A higher value of the index indicates a greater level of behavior problems. The weighted mean for children in the NLSY-C is 106; that is, mothers reported a greater than average amount of child behavior problems. Baker et al. (1993) hypothesize that this finding results from the mothers of children in the NLSY-C being younger than average; thus, they are less experienced in child rearing. These normed scores are then converted into percentiles, with the mean being 62 for the full NLSY-C sample.

Explanatory Variables

Homeownership

The parents in the NLSY79 sample are in the part of their life cycle where households frequently make the transition from renting to owning. In the U.S. the average ownership rate is 14 percent at age 22 and it rises to 42 percent by age 29 and to 60 percent by age 36. We observe the homeownership status of the child's parents each year beginning in 1979. These data allow us to test for the impact of not only the contemporaneous measure of homeownership, but also its duration. All households in our sample have children (an important factor in explaining the probability of homeownership); thus, our sample's homeownership rates are relatively high compared with the age-adjusted national rates.

Control Variables

Economic

Nominal variables including wages, nonlabor income, and wealth are deflated to a common base year, 1994, using the CPI-all item index for urban wage earners.

Maternal Wage. The NLSY79 reports the typical hourly wage rate for working women. For mothers not currently working, wages are not observed; thus, potential wage earnings must be estimated. Potential wage earnings (a similar concept to permanent income) better capture the long-term potential economic contribution of the mother. We follow the human capital approach and estimate wage functions for working mothers, then apply this equation to predict wages for nonworkers. However, estimation of wages using a sample of only working mothers may result in biased coefficients because the sample may be nonrandom. Correction procedures for sample selection bias are well known (Heckman 1979) and we use a maximum likelihood procedure to jointly estimate labor force participation and the wage equation (Greene 1995: 642). Explanatory variables in the labor force participation equation include descriptors of the mother's personal and educational characteristics and descriptors of household characteristics such as the number of children. Explanatory variables in the wage equation include a measure of the mother's score on a standardized achievement test, her race/ethnicity, her education, nine regional indicators, and a dummy variable indicating whether the locality is an MSA. We use the estimated wage rate for all observations in the child outcome

equations based on our belief that the predicted value is the best predictor of a woman's long-term wage.

Father's Wage. We calculate wage levels for fathers (or male partners) by dividing mother-reported total annual spouse earnings in the preceding calendar year by the product of usual spouse paid work hours per week and total spouse weeks worked in that year. For nonworking fathers, a wage is estimated as described above. If no father is present, the variable is set equal to zero.

Non-labor Income. The NLSY79 reports calendar year income derived from returns on savings accounts, stock dividends, rents, inheritances, public transfers, and other sources. Gifts, such as from parents or grandparents, also are included. These variables are aggregated to a single non-labor income measure.

Wealth. Wealth is reported annually in the NLSY79 and it includes financial assets, and value of owned home, other real estate, owned businesses, autos and other durables. Debts also are reported; thus, our measure is of net worth (deflated). These data have been compared to age adjusted wealth data in the Survey of Consumer Finances and found to be similar (Haurin, Hendershott, and Wachter 1996).

Socio-Demographic

Family Size. The number of Blake (1989), Parcel and Menaghan (1994b), and Downey (1995) argue that the number of siblings affects the time and monetary resources available for each child.. Their studies find that as the number of siblings increases, child outcomes are negatively impacted.

Maternal Marital History. Mother's marital status and history may influence child outcomes (Haurin 1992; Rogers, Parcel, and Menaghan 1991). A marital history indicates the stability of the past relationships, an important input to social capital formation. We represent mothers' marital history with a series of four dummy variables. With the reference category being mothers who are married throughout the duration of the child's life, the dummy variables are: single for the duration of the child's life (SINGLE), single during the birth year and married during the interview year (GET MARRIED), married during the birth year, divorced/separated/widowed once or more subsequently, not remarried at the survey date (MARITAL BREAKUP), and married

during the birth year, divorced/separated/widowed once or more subsequently, remarried at the survey date (REMARRY).

Maternal Background Characteristics. Eight mother's background characteristics are included in the child outcome equations. They are ethnicity, age, highest grade completed (HGC), mental ability[1], level of religiosity (Haurin and Mott 1990)[2], type of household in which the mother resided when she was age 14[3], maternal mastery[4], the number of paid hours of work during the child's first three years of life (TOTAL HOURS MOM WORK-YRS 1-3) (Parcel and Menaghan 1994b).

Paternal Background Characteristics. Father's age and highest grade completed (HGC) are included in the data set if her resides in the household. If a male partner is present in the household, we include his age and schooling.

Child Characteristics. We include child's gender, health limitations, and indicator of low birth weight (below four pounds) (Mott 1991;Parcel and Menaghan 1994a).

Community Factors

A large literature addresses the link between the quality of neighborhood and child outcomes. Jencks and Mayer (1990) review the literature and conclude that knowledge is better regarding neighborhood effects on adolescent than on child outcomes. Crane (1991a) finds evidence to support an "epidemic" model of social problems such that the incidence of problems increases nonlinearly as the quality of neighborhoods decline; in particular, both black and white adolescents have sharp increases of risk in having a child and dropping out of school in the worst neighborhoods of large cities (Crane 1991b). Brooks-Gunn et al. (1993) investigate neighborhood effects on outcomes for both

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[1] The AFQT consists of the sum of scores on four subtests of the Armed Services Vocational Aptitude Battery, including word knowledge, paragraph comprehension, numeric operations, and arithmetic reasoning. Details are provided in Baker, et al. (1993).

[2] We include five dummy variables showing the mother's frequency of church attendance. The omitted category is no attendance, the dummy variables are CHURCH ATTEND-LOW (up to once per month), CHURCH ATTEND-SOME (2 to 3 times per month), CHURCH ATTEND-OFTEN (once per week), and CHURCH ATTEND-HIGH (more than once per week).

[3] We use a series of three dummy variables to define cases where the child's mother was living with both parents when she was age 14 (omitted cases), was living with her mother and no other man (MOM-ALONE), was living with her mother and some other man such as a stepfather or other male relative (MOM-PAIR), and was living in some other arrangement such as with only her father (MOM-OTHER).

[4] The Rotter Scale assesses the degree to which a woman feels that she has control over the direction of her life, she can follow through with plans she makes, she can get what she wants without relying on luck, and

adolescents and children. They find that there are effects of neighborhood affluence on the IQ level of three-year-old low birth-weight children even when some family influences are controlled. In related work, Duncan, Brooks-Gunn, and Klebanov (1994) find positive net effects of higher concentrations of affluent neighbors on the IQ level of five-year-old children, and negative effects on externalizing behavior problems from higher concentrations of low-income neighbors net of individual level predictors.

Our county level measures of neighborhood variables include median household income, population density, percent Black, percent Hispanic, unemployment rate, poverty rate, crime rate, and average level of education (percent high school graduates and percent with some college).

IV. Results

Descriptive Statistics

Means of the key variables are listed in Figure 2 by survey year. The number of observations is the same each of the four years in the panel data set, 1026 households, yielding 4,104 total observations.

Figure 2: Sample Means of the Dependant Variables

Variable	1988	1990	1992	1994
HOME: Cognitive/Physical	45.8	47.4	49.9	45.5
HOME: Emotional	46.0	47.1	47.7	46.7
PIAT: Mathematics	45.7	46.8	46.5	46.1
PIAT: Reading	55.4	55.4	54.2	52.5
Behavior Problems	64.8	65.6	65.9	66.8
Homeownership Rate	0.35	0.38	0.42	0.45
Duration of Home Owning	1.52	2.06	2.65	3.26

Means of the explanatory variables are listed in Figure 3. The relatively high percentage of Black children results from the NLSY-C sample being comprised of relatively young mothers and the NLSY79 over-sampling Black youth.

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she has influence over things that happen to her. A higher value on the scale indicates a higher degree of control.

Figure 3: Sample Means of Explanatory Variables

Variable	Mean	Variable	Mean
Male	0.50	MOM_ALONE[1]	0.20
Black	0.35	MOM-PAIR[2]	0.10
Mexican Hispanic	0.03	MOM-OTHER[3]	0.09
Other Hispanic	0.02	Maternal Mastery	2.27
Health Limit	0.04	Mother's Wage	8.23
Low Birth Weight	0.07	Siblings	1.67
Mother's HGC	11.77	Father's Age[4]	34.83
Mother's Age	31.00	Father's HAC[4]	12.27
Mother's AFQT	31.16	Father's Wage[4]	12.78
Church-Attend-Low	0.25	Non-labor Income ($000)	5.30
Church-Attend-Some	0.24	Wealth ($000)	4.70
Church-Attend-Often	0.23	Single	0.17
Church-Attend-High	0.11	Get Married	0.10
Total Hours Mom Work-Yrs 1-3 (000)	1.68	Remarry	0.26
Crime Rate Index	58.61	Marital Breakup	0.12
% Hispanic	9.20	Population Density	16.28
% Poverty	10.91	Unemployment Rate	49.38
Median Community Income ($000)	19.12	% High School Educated	14.66
% Black	13.89	% College Educated	

[1] Mom Raised by her Mother
[2] Mother Raise by her Mother and Another Man
[3] Mother Raised by some other Combination
[4] The Mean is for only father or partners present in Household

Figure 4 lists the means of the dependent variables for three groups: those owning from 1988 to 1994, those renting during the same period, and those changing tenure status[5]. There are substantial differences in the means of the dependent variables for the three groups, with the children of renters scoring lower on the math and reading assessments, having more behavioral problems, and living in lower- rated home environments. The means for those households in transition are between those of continuous renters and continuous owners. The key question is whether these differences are due to differences in tenure status or due to differences in other influential variables.

[5] By far, most changes in tenure for this sample of young households are from renting to owning

Figure 4: Means for Households Who Were Homeowners Throughout 1988-94, Renters Throughout 1988-94, and Those Who Changed Tenure Status

Variable	Owner	Renter	Change Tenure
HOME: Cognitive/Physical	60.1	38.1	50.4
HOME: Emotional	61.3	37.3	48.8
PIAT: Mathematics	54.7	40.1	48.5
PIAT: Reading	63.3	48.2	56.1
Behavior Problems	62.5	68.0	65.0

Estimation Results

In the home environment estimation, we find that being a homeowner is highly significant and it improves the index of the cognitive stimulation/physical environment by 23 percent, ceteris paribus. Other significant variables with positive impacts include mother's AFQT, mother's education, mother's age (with a declining marginal impact), and the church attendance variables. Significant variables with negative impacts include child's gender being male, mother's race being Black, number of siblings, and the locality's percentage of households in poverty.

In the emotional support home environment estimation we find that being a homeowner is significant and strong. It improves the index of emotional support by 13 percent, ceteris paribus. Other significant variables with positive impacts include mother's age (declining marginal impact), and father's age, and mother's educational level. Significant variables with negative impacts include race being Black, number of siblings, and the mother's marital history being single, remarried, or becoming divorced, separated/widowed compared with being continuously married. The negative effects of ending a marriage or remarrying upon the measure of the emotional support in the home are large.

We conclude that homeownership impacts the levels of the cognitive stimulation/physical environment and emotional support environment of the home in which a child lives. This is quite plausible. An implication is that homeownership has three possible routes of impact on a child's cognitive and behavior outcomes through

multiple routes including changes in the home environment and changes in household stability.

With regard to child outcomes, in the mathematical achievement equation, we find significant explanatory variables (five percent level) with positive coefficients include the cognitive/physical and emotional support home environment scales, mother's achievement test score (AFQT), mother's and father's education, a frequent or high level of church attendance, neighborhood median income, and the neighborhood poverty rate[6]. Significant variables with negative coefficients include low birth weight and a greater number of siblings.

The homeownership variable has a positive coefficient, but the coefficient is significant at the 10 percent leveling the PIAT-Math estimation. Accepting the point estimate of the homeownership variable implies that being a homeowner directly raises PIAT-Math by 3.4 points, this change representing a seven percent increase. Further, being a homeowner raises the value of HOME-C by 10.7 points and HOME-E by 5.9 points. The calculated indirect impact of homeowning on PIAT-Math through an improved home environment is 0.8 points. Combined, the total impact of homeownership on a child's mathematical cognitive outcome is to raise it about nine percent compared to a family that rents, holding constant a host of social, demographic, and economic variables.

The second set of results is for the measure of a child's reading recognition. Significant explanatory variables with positive coefficients include HOME-C, HOME-E, mother's AFQT, mother's mastery, and a high level of church attendance. Negative and significant effects occur for male children, more siblings, and a high local unemployment rate.

The homeownership indicator has a positive coefficient, but is significant only at the 10 percent level. Using the point estimate, being a homeowner raises PIAT-Reading directly by 3.2 points and indirectly by 0.7 points. Compared with an identical household that rents, these results indicate that residence in an owned home raises a child's reading score by about seven percent.

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[6] The Measures of the community's attributes are highly correlated; thus it is difficult to identify separate impacts.

The final results are for the index of a child's behavior problems (BPI). The expected coefficient signs are the opposite of those for the models of cognition. Negative and significant coefficients occur for HOME-C, HOME-E, and mother's mastery. Significant and positive coefficients occur for male children, children with health limitations, and if the mother divorces and remarries.

The homeownership indicator has the expected negative coefficient but is not significant. Based on the point estimate, compared with a similar renter, homeowning directly reduces the measure of the child's behavior problems by 1.7 points, equal to 2.6 percent of the mean value of BPI. Homeownership also changes the cognitive/physical and emotional support home environments, this change further reducing the BPI by 0.9 points. The cumulative impact is that homeownership reduces the index of child behavior problems by about three percent, but the lack of statistical significance suggests that the impact could be only one percent.

IV. V. Conclusion

In the U.S., homeownership receives public sector encouragement and subsidies. The largest subsidy occurs through tax reductions such as the mortgage interest deduction, the nontaxation of capital gains, and the lack of taxation of the imputed rental income of owner-occupiers. Tax subsidies alone are estimated to equal $61 billion annually. In addition, many programs in HUD encourage homeownership and Fannie Mae and Freddie Mac have to meet various federal regulations regarding underwriting home loans.

While increasing the homeownership rate is a goal of the federal government, relatively little is known about the impact of homeowning on the resident households. Mentioned in support of the programs is the claim that homeowning is a good method for lower and middle-income households to build wealth. Also mentioned are claims that homeowners are better citizens with higher levels of participation in local government, community affairs, and local schools. Another claim is that homeowners have higher levels of investment in their properties and in their neighborhood. A series of recent studies test these claims and better estimate the impact of homeownership upon the resident households and surrounding community. We add to this literature by analyzing

the impact of homeowning on the cognitive and behavioral outcomes of a household's young children.

There is a very large amount of literature devoted to the study of child outcomes. This literature suggests that a long list of control variables is needed if one is to attempt to isolate the impact of a single variable such as homeownership status. Further complicating the analysis of child outcomes is the problem that unobserved parental characteristics might lead to sorting by residential tenure status and cause sample selection bias if OLS is used for the analysis. Addressing this selection problem is difficult, but important to the correct isolation of the impact of homeownership on child outcomes.

Our results are consistent with the following conclusions. First, we find that owning a home compared with renting leads to a higher quality home environment, where home environment is measured by indexes of the cognitive support/physical environment and the emotional support of children in that home. Second, we find that a child's cognitive outcomes are up to nine percent higher in math achievement and seven percent higher in reading achievement for children living in owned homes, *ceteris paribus*. Third, we find that the measure of a child's behavior problems is up to three percent lower if the child resides in an owned home. Existing literature suggests that these youths' greater cognitive abilities and fewer behavioral problems will result in higher educational attainment, greater future earnings, and a reduced tendency to engage in deviant behaviors. These results occur even when we control for numerous parental economic, demographic, and social characteristics. We also control for the child's gender and health, number of siblings, and nine characteristics of the household's locality. Thus, in a well-controlled study, we find substantial support for the hypothesis that homeownership increases child cognition and reduces behavior problems.

Policy Implications

Housing policies in support of homeownership are often targeted at particular groups or types of localities. Our finding that homeownership enhances child outcomes suggests that housing policies should be targeted at rental households that have children. Currently, 22 percent of all married households with children are renters and 57 percent

of other household types with children are renters. Quickening this groups' transition from renting to owning would expose their children to a better home environment and to homeownership for a longer period. We recommend further analysis of the impact of homeownership on children living in a single-parent family to determine if there is any justification for additional encouragement of homeownership among single mothers.

There continues to be illegal discrimination in the housing market, particularly regarding aspects of the homeownership decision. Our study supports the conclusion that any reduction in homeownership due to illegal discrimination also has the effect of reducing the level of cognition and increasing the behavioral problems of the children of households that are the targets of discrimination. Reducing illegal discrimination may not only help solve the problem of spatial mismatch of jobs and residences, but also result in long-term gains of the children in these households.

A final observation about policy is that there is continuous discussion of K-12 educational reforms ranging from reducing class sizes in public schools to educational vouchers. The goal of these in-school input-oriented programs is to improve child cognition. We find that significant improvement in child cognition results from homeownership and an improved home environment. In contrast to the most often suggested educational reforms, our analysis is of the out-of-school environment. Hanushek (1986, 1996) finds mixed results about the educational value of additional in-school inputs including expenditures per pupil. Thus, the general policy effort to improve the educational attainment of children should consider innovative programs that encourage homeownership of targeted households as alternatives to additional government expenditures on school inputs.

References

Aaronson, Daniel. "A Note on the Benefits of Homeownership," *Journal of Urban Economics* 47 (2000): 356–369.

ACCRA. *Cost of Living Index Manual.* Louisville KY: Louisville Chamber of Commerce, 1993.

Achenbach, Thomas S., and Craig Edelbrock. "Behavioral Problems and Competencies Reported by Parents of Normal and Disturbed Children Aged Four through Sixteen," *Monographs of the Society for Research in Child Development*, Serial No. 188, 46 (1) 1981.

Achenbach, Thomas M., Stephanie H. McConaughy, and Catherine T. Howell *Manual for the Child Behavior Checklist and Revised Child Behavior Profile.* Burlington, Vermont: Department of Psychiatry, University of Vermont, 1983.

Achenbach Thomas M., Stephanie H. McConaughy, and Catherine T. Howell. "Child/Adolescent Behavioral and Emotional Problems: Implications of Cross-Informant Correlations for Situational Specificity," *Psychological Bulletin* 101 (1987) :213–232.

Austin, D. Mark, and Yoko Baba. "Social Determinants of Neighborhood Attachments. *Sociological Spectrum* 10 (1990): 59–78.

Baker, Paula C., Canada Keck, Frank L. Mott, and Steve Quinlan. *NLSY Child Handbook: Revised Edition.* Columbus, OH: Center for Human Resource Research, The Ohio State University, 1993.

Barnow, B. S., G. G. Cain, and A. S. Goldberger. "Issues in the Analysis of Selectivity Bias." In *Evaluation Studies Review Annual.* Edited by W. E. Stromsdorfer and G. Farkas. Beverly Hills: Sage, 1981.

Baum, Thomas, and Paul Kingston. "Homeownership and Social Attachment. *Sociological Perspectives* 27 (1984): 159–180.

Blake, Judith. *Family Size and Achievement.* Berkeley: University of California Press, 1989.

Becker, Gary. "A Theory of the Allocation of Time. *Economic Journal* 75 (1965): 493–517.

Boehm, Thomas P., and Tracy M. Gordon. "Does Homeownership by Parents Have an Economic Impact on Their Children?" *Journal of Housing Economics* 8 (1999): 217–232.

Bourassa, Steven, Donald R. Haurin, R. Jean Haurin, Patric H. Hendershott. "Independent Living and Homeownership: An Analysis of Australian Youth," *Australian Economic Review* 107 (1994): 29–45.

Bradley, Robert H., "The Home Inventory: Rationale and Research." In *Recent Research in Developmental Psychopathology, Book Supplement to the Journal of Child Psychology and Psychiatry*. Edited by J. Lachenmeyer and M. Gibbs. New York: Gardner, 1985.

Bradley, Robert H., and BettyeM. Caldwell. "The HOME Inventory: A Validation of the Pre-School Scale for Black Children," *Child Development* 52 (1981): 708–710.

Bradley, Robert H., and BettyeM. Caldwell. (a) "The HOME Inventory and Family Demographics," *Developmental Psychology* 20 (1984): 315–320.

Bradley, Robert H., and BettyeM. Caldwell. (b) "The Relation of Infants' Home Environments to Achievement Test Performance in First Grade: A Follow-Up Study," *Child Development* 55 (1984): 803–809.

Bradley, Robert H., Stephen L. Rock, Holly M. Hamrick, and Pandia Harris. "Home Observation for Measurement of the Environment: Development of a Home Inventory for Use with Families Having Children 6 to 10 Years Old," *Contemporary Educational Psychology* 13 (1988): 58–71.

Brooks-Gunn, Jeanne, Greg J. Duncan, Pamela Kato Kelbanov, and Naomi Sealand. "Do Neighborhoods Influence Child and Adolescent Development?" *American Journal of Sociology* 99 (1993): 353–95.

Caldwell, Bettye and R. Bradley, "Home Observation for Measurement of the Environment." Working paper, University of Arkansas, Little Rock, 1984.

Case, Anne C., and Lawrence F. Katz. "The Company You Keep: The Effects of Family and Neighborhood on Disadvantaged Youths." Working paper No. 3705. National Bureau of Economic Research, 1991.

Caspi, Avshalom, Glen H. Elder, Jr., and Daryl J. Bem. "Moving Against the World: Life-Course Patterns of Explosive Children," *Developmental Psychology* 23 (1987): 308–313.

Center for Human Resource Research. *NLSY Child Handbook*, Columbus Ohio, 1994.

Coleman, James S. "Social Capital in the Creation of Human Capital," *American Journal of Sociology* 94 1988): S95–S120.

Crane, Jonathan (a). "The Epidemic Theory of Ghettos and Neighborhood Effects on Dropping Out and Teenage Childbearing," *American Journal of Sociology* 96 (1991): 1226–59.

Crane, Jonathan (b). "Effects of Neighborhoods on Dropping Out of School and Teenage Childbearing." In *The Urban Underclass*. Edited by Christopher Jencks and Paul E. Peterson. Washington, D.C.: Urban Institute, 1991.

Currie, Janet and Aaron Yelowitz. "Are Public Housing Projects Good for Kids?" *Journal of Public Economics* 75 (2000): 99–124.

Downey, Doug. "When Bigger is not Better: Number of Siblings, Parental Resources, and Educational Performance," *American Sociological Review* 60 (1995): 746–761.

Duncan, Greg J., Jeanne Brooks-Gunn, and Pamela Kato Klebanov. "Economic Deprivation and Early Childhood Development," *Child Development* 65 (1994): 296–318.

Elardo, Richard D., and Robert H. Bradley. "The Home observation for Measurement of the Environment (HOME) Scale: A Review of Research," *Developmental Review* 1 (1981): 113–145.

Engelhardt, Gary. "House Prices and the Decision to Save for Downpayments," *Journal of Urban Economics* 36 (1994): 209–237.

Evans, William, Wallace Oates, and Robert Schwab. "Measuring Peer Group Effects: A Study of Teenage Behavior," *Journal of Political Economy* 100 (1992): 966–991.

Executive Office of the President. 2000. *The Fiscal Year 2001 Budget of the United States*. Washington, D. C.

Forgatch, M S., G. R. Patterson, and M. L. Skinner. "A Mediational Model for the Effect of Divorce on Antisocial Behavior in Boys." In *Impact of Divorce, Single Parenting, and Step-Parenting on Children*. Edited by E. M. Hetherington, and J. D. Arestah. Hillsdale, NJ: Erlbaum, 1988.

Graham, Philip J., and Michael Rutter. "The Reliability and Validity of the Psychiatric Assessment of the Child II: Interview with the Parent," *British Journal of Psychiatry* 114 (1968): 581–592.

Green, Richard, and Michelle White. "Measuring the Benefits of Homeowning: Effects on Children," *Journal of Urban Economics* 41 (1997): 441–461.

Greene, William. *Econometric Analysis*, 2nd ed. New York: Macmillan Publishing Co., 1993.

Greene, William. *LIMDEP, Version 7.0 User's Manual*. Bellport, N.Y.: Econometric Software Inc., 1995.

Hanushek, E.A. "The Economics of Schooling: Production and Efficiency in Public Schools," *Journal of Economic Literature* 24 (1986): 1141–1177.

Hanushek, E.A. "School Resources and Student Performance." In *Does Money Matter? The Effect of School Resources on Student Achievement and Adult Success*. Edited by G. Burtless. Washington D.C., Brookings Institution, 1996.

Hanushek, E.A., J. Kain, and S. Rivkin. "The Costs of Switching Schools." Working paper. Rochester, NY: Rochester University, 1999.

Haurin, Donald R., Patric Hendershott, and David Ling. "Homeownership Rates of Married Couples: An Econometric Investigation," *Housing Finance Review* 7 (1988) 54: 85–108.

Haurin, Donald R and Susan Wachter. "Wealth Accumulation and Housing Choices of Young Households: An Exploratory Investigation," *Journal of Housing Research* 7 (1996): 33–57.

Haurin, Donald R. "Borrowing Constraints and the Tenure Choice of American Youth," *Journal of Housing Research* 8 (1997): 137–154.

Haurin, R. Jean. "Patterns of Childhood Residence and the Relationship to Young Adult Outcomes," *Journal of Marriage and the Family* 54 (1992): 846–860.

Haurin, R. Jean and F. Mott. "Adolescent Sexual Activity in the Family Context: The Impact of Older Siblings," *Demography* 27 (1990)): 537–557.

Haveman, Robert, and Barbara Wolfe. "The Determinants of Children's Attainments: A Review of Methods and Findings," *Journal of Economic Literature* 33 (1995): 1829–1878.

Heckman, James. "Sample Selection Bias as a Specification Error," *Econometrica* 47 (1979): 153–161.

Hendershott, Patric, and James Shilling. "The Economics of Tenure Choice, 1955–79." In *Research in Real Estate*. Edited by C.F. Sirmans. Greenwich, Conn: JAI Press, 1982.

Hogan, Dennis P,. and Evelyn M. Kitagawa. "The Impact of Social Status, Family Structure, and Neighborhood on the Fertility of Black Adolescents," *American Journal of Sociology* 90 (1985): 825–55.

Hunter, Albert. "The Loss of Community: An Empirical Test Through Replication," *American Sociological Review* 40 (1975): 537–551.

Jeffers, Leo, and Jean Dobos. "Communication and Neighborhood Mobilization," *Urban Affairs Quarterly* 20 (1984): 97–112.

Jencks, Christopher, and Susan Mayer. "The Social Consequences of Growing Up in a Poor Neighborhood." In *Inner-City Poverty in the United States*. Edited by Laurence Lynn Jr. and Michael McGeary. Washington, D.C., National Academy Press, 1990.

Kellam, Sheppard G., Jeannette D. Branch, Khazan C. Agrawal, and Margaret E. Ensminger. *Mental Health and Going to School*. Chicago: University of Chicago Press, 1975.

Kohlberg, Laurence, Jean LaCrosse, and David Ricks. "The Predictability of Adult Mental Health from Childhood Behavior." In *Manual of Child Psychopathology*. Edited by B. B. Wolman. New York: McGraw-Hill, 1972.

Kohn, Melvin L. *Class and Conformity, A Study in Values*, 2nd ed. Chicago: University of Chicago Press, 1977.

Lee, Barrett A., R. S. Oropesa, and James Kanan. "Neighborhood Context and Residential Mobility," *Demography* 31 (1994): 249–270.

Mayer, Neil. "Rehabilitation Decisions in Rental Housing," *Journal of Urban Economics* 10 (1981): 76–94.

Mechanic, David. *Mental Health and Social Policy*, 2nd Edition. Englewood Cliffs, NJ: Prentice-Hall, 1980.

Menaghan, Elizabeth G., and Toby L. Parcel. "Determining Children's Home Environments: The Impact of Maternal Characteristics and Current Occupational and Family Conditions," *Journal of Marriage and the Family* 53 (1991): 417–431.

Menaghan, Elizabeth G., and Toby L. Parcel. "Social Sources of Change in Children's Home Environments: The Effects of Parental Occupational Experiences and Family Conditions," *Journal of Marriage and the Family* 57 (1995): 1–16.

Mott, Frank. "Developmental Effects of Infant Care: The Mediating Role of Gender and Health," *Journal of Social Issues* 47 (1991): 139–158.

Office of Federal Housing Enterprise Oversight. *House Price Index*. Washington, D.C., 1998.

Parcel, Toby L., and Elizabeth G. Menaghan. "Maternal Working Conditions and Child Verbal Facility: Studying the Intergenerational Transmission of Inequality from Mothers to Young Children," *Social Psychology Quarterly* 53 (1990): 132–147.

Parcel, Toby L., and Elizabeth G. Menaghan. "Family Social Capital and Children's Behavior Problems," *Social Psychology Quarterly* 56 (1993): 120–135.

Parcel, Toby L., and Elizabeth G. Menaghan. (a). "Early Parental Work, Family Social Capital and Early Childhood Outcomes," *American Journal of Sociology* 99 (1994): 972–1009.

Parcel, Toby L., and Elizabeth G. Menaghan. (b). *Parents' Jobs and Children's Lives.* New York: Aldine De Gruyter, 1994.

Ramey, C.K., K. Yeates, and E. Short. "The Plasticity of Intellectual Development: Insights from Preventive Intervention," *Child Development* 55 (1984): 1913–1925.

Rogers, Stacy, Toby L. Parcel, and Elizabeth G. Menaghan. "The Effects of Maternal Working Conditions and Mastery on Child Behavior Problems: Studying the Intergenerational Transmission of Social Control," *Journal of Health and Social Behavior* 32 (1991): 145–64.

Ross, Steven I. "Mortgage Lending, Sample Selection and Default," *Real Estate Economics* (200) 28:581–621.

Rotter, Julian B. "Generalized Expectancies for Internal vs. External Control of Reinforcements," *Psychological Monographs* 80 (1966):1–28.

Rutter, Michael. "Sex Differences in Children's Responses to Family Stress." In *The Child in His Family.* Edited by E. J. Anthony and C. Koupernik. New York: Wiley, 1970.

Staiger, Douglas, and James H. Stock. "Instrumental Variables Regression with Weak Instruments," *Econometrica* 65 (1997): 557–586.

Yeates, K., D. MacPhee, F. Campbell, and C. Ramey. "Maternal IQ and Home Environment as Determinants of Early Childhood Intellectual Competence: A Developmental Analysis," *Developmental Psychology* (1983) 19: 731–739.

Yinger, John "Measuring Racial-Discrimination with Fair Housing Audits – Caught in the Act." *American Economic Review* (1986) 76: 881-893

Zill, Nicholas. "Behavior, Achievement, and Health Problems Among Children in Stepfamilies: Findings from a National Survey of Child Health." In *The Impact of Divorce, Single Parenting, and Stepparenting on Children.* Edited by E. M. Hetherington and J. D. Arasteh. Hillsdale, NJ: Erlbaum, 1988.

Appendix: Measurement Of The Home Environment

Details about the wording of the questions, coding of the question, and creation of the indexes are in the Baker et al. (1993). See p. 85–95, Table 5.5.1 (p. 158), and appendix B.

The cognitive support/physical environment HOME scale for 3- to 5-year old children includes responses to 15 items:

Question to child's mother:
1. How often do you read stories to your child?
2. How many books does your child have?
3. How many magazines does your family receive?
4. Does your child have use of a record player, tape deck, or CD player and at least five records, tapes or CDs?
5. Have you or another adult or older sibling helped your child learn numbers at home?
6. Same as 5, but alphabet?
7. Same as 5, but colors?
8. Same as 5, but shapes and sizes?
9. How often does a family member take your child on an outing?
10. How often does a family member take your child to a museum?

Interviewer observations:
11. Is the child's play environment safe where safe is defined as no structural or health hazards (frayed wires, falling plaster, peeling paint, broken glass, rodents, poisons)?
12. Is the interior of the house dark or perceptually monotonous?
13. Are all rooms in the house/apartment visibly clean?
14. Are all rooms of the house minimally cluttered?
15. Does the building have potentially dangerous structural or health hazards; e.g. falling plaster, peeling paint, rodents, glass, poisons and cleaning materials, flames and heat, frayed electrical wires?

The cognitive support/physical environment HOME scale for children 6 to 9 includes 14 items:

Question to child's mother:
1. How often do you read stories to your child?
2. How many books does your child have?
3. Is there a musical instrument that your child can play at home?
4. Does your family get a daily newspaper?
5. How often does your child read for enjoyment?
6. Does your family encourage your child to start and keep doing hobbies?
7. Does your child get lessons or belong to any organization than encourages sports, music, art, dance, drama, etc.?
8. How often has any family member taken your child to a museum within the last year?
9. How often has a family member taken your child to any type of musical or theatrical performance in the last year?

Interviewer observations:

10. Is the child's play environment safe where safe is defined as no structural or health hazards (frayed wires, falling plaster, peeling paint, broken glass, rodents, poisons)?
11. Is the interior of the house dark or perceptually monotonous?
12. Are all rooms in the house/apartment visibly clean?
13. Are all rooms of the house minimally cluttered?
14. Does the building have potentially dangerous structural or health hazards; e.g. falling plaster, peeling paint, rodents, glass, poisons and cleaning materials, flames and heat, frayed electrical wires?

The cognitive support/physical environment HOME scale for children 10 and above includes 12 items:

Question to child's mother:

1. How many books does your child have?
2. Is there a musical instrument that your child can play at home?
3. Does your family get a daily newspaper?
4. How often does your child read for enjoyment?
5. Does your family encourage your child to start and keep doing hobbies?
6. Does your child get lessons or belong to any organization than encourages sports, music, art, dance, drama, etc.?
7. How often has any family member taken your child to a museum within the last year?
8. How often has a family member taken your child to any type of musical or theatrical performance in the last year?

Interviewer observations:

9. Is the child's play environment safe where safe is defined as no structural or health hazards (frayed wires, falling plaster, peeling paint, broken glass, rodents, poisons)?
10. Is the interior of the house dark or perceptually monotonous?
11. Are all rooms in the house/apartment visibly clean?
12. Are all rooms of the house minimally cluttered?

The emotional support HOME scale for 3 to 5 year old children includes responses to 12 items:

Question to child's mother:

1. How much choice does your child have in deciding what foods to eat?
2. How many hours per day is the TV in your home playing?
3. If your child was so angry that he/she hit you, would you hit back, send him/her to his/her room, spank him/her, talk to him/her, ignore it, give him/her a household chore, take away his/her allowance, hold the child's hands until he/she was calm?
4. Does your child ever see his or her father, stepfather, or father figure?
5. How often does your child eat a meal with both mother and father (or equivalent)?

Interviewer observations:

6. Did the mother spontaneously speak to the child twice or more?

7. Did the mother respond verbally to the child's speech?
8. Did the mother hug, caress, or kiss the child at least once?
9. Did the mother slap or spank the child?
10. Did the mother interfere with the child's actions or restrict him/her from exploring?
11. Did the mother provide toys or interesting activities for the child?
12. Did the mother keep the child in view?

The emotional support HOME scale for children 6 and older includes 13 items:

Question to child's mother:

1. How often does your whole family get together with relatives or friends?
2. How many hours per weekday does your child watch TV?
3. How many hours per weekend day does your child watch TV?
4. If your child brought home a report card with grades lower than expected, how likely would you: lecture the child, talk with the child, punish the child, wait and see, tell child to spend more time on homework, help the child with homework, contact the teacher?
5. If your child was so angry that he/she said I hate you or swore at you, how would you react: grounding, spank him/her, talk to him/her, ignore it, give him/her a household chore, take away his/her allowance, take away TV or other privileges, send to his/her room for more than 1 hour?
4. Does your child ever see his or her father, stepfather, or father figure?
5. How often does your child eat a meal with both mother and father (or equivalent)?
6. When your family watches TV together, do you or the father discuss the program with the child?
7. How often does your child spend time with his/her father in outdoor activities?
8. How much time does your child spend with his/her father?

Interviewer observations:

9. Did the mother encourage the child to contribute to the conversation?
10. Did the mother answer the child's questions?
11. Did the mother converse with the child excluding scolding?
12. Did the mother introduce the interviewer to the child by name?
13. Did the mother's voice convey positive feelings about the child?